

"The Origin and Evolution of Interstellar Dust in the Local and High-redshift Universe"

In this talk I will begin by reviewing our current state of knowledge regarding the origin and evolution of dust in the local solar neighborhood. Using chemical evolution models, I will discuss their many different input parameters and their uncertainties.

An important consequence of these models is the delayed injection of dust from AGB stars, compared to supernova-condensed dust, into the interstellar medium. I will show that these stellar evolutionary effects on dust composition are manifested in the infrared spectra of local galaxies.

The delayed production of dust in AGB stars has also important consequences for the origin of the large amount of dust detected in high-redshift galaxies, when the universe was less than ~ 1 Gyr old. Supernovae may have been the only viable dust sources in those galaxies. Recent observations of SN1987a show a significant mass of dust in the ejecta of this SN. Is that production rate high enough to account for the observed dust mass in these galaxies? If not, what are the alternative viable sources of dust, and how do they depend on the nature of the galaxy (starburst or AGN) and its star formation history.